

**Remarks**

The Office Action mailed 6 June 2006 has been received and reviewed. Claims 1, 14, and 28 have been amended. Claims 9, 19, and 32 have been canceled. Therefore, the pending claims are claims 1-8, 10-18, 20-31, and 33-39. However, claims 10-12, 20-27, 33-35, and 37-39 have been withdrawn from consideration in view of a species restriction. Therefore, the remarks provided herein are with respect to claims 1-8, 13-18, 28-31, and 36. Reconsideration and withdrawal of the rejections are respectfully requested in view of the amendments and remarks provided herein.

**REQUIREMENT FOR DOCUMENTS**

The Examiner is requiring a copy of the presentation made by applicant November 13, 2002 as noted in the previously submitted declaration Exhibit B-7 entitled "Using Potable Water in Heat Exchangers" assuming that it is public knowledge. This was an oral presentation with no power point slides. A one page simple hand out was provided according to Applicant, along with a drawing similar to Exhibit A-1. However, due to computer problems, such materials have been lost and no accurate copies are in the possession of Applicant such that they can be made available to the Examiner. It is noted that this presentation was in November 2002 and made by Applicant. This presentation or any documents related thereto are within the year prior to the filing date of the provisional application of which the present application claims benefit and, therefore, for at least such reasons, are not prior art to the present invention.

**ALLEGED LACK OF CONCEPTION PRIOR TO THE CRITICAL DATE**

The Examiner continues to allege that the revised Declaration filed on 14 February 2006 is ineffective to overcome the JP 2002-30717 reference. Applicant respectfully traverses the Examiner's continued refusal to consider the Declaration effective to overcome this reference.

Applicant initially wishes to correct the Examiner's assumption that Mr. Anderson is "a patent attorney responsible for representing Mr. Anderson in certain business matters" and "has

prepared and signed his own declaration that allegedly shows conception prior to 31 January 2002." Mr. Anderson is not a patent attorney. Rather, at the present time, Mr. Anderson is in a business relationship with Mr. Janssen in respect to the present invention. As such, Mr. Anderson is in a position to declare and has properly declared certain facts that corroborate the facts provided by Mr. Janssen and those shown in the drawing, Exhibit A-1. The Examiner asked for a corroborating declaration. Since Brian Urlaub is not at this time available to the Applicant for providing such corroboration, Mr. Anderson's declaration was and is provided instead. Just because Mr. Anderson is an attorney, does not mean that he cannot make a declaration and provide the same acknowledgments that "all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon." It is not appropriate for the Examiner to judge the veracity of Mr. Anderson, unless there is evidence to the contrary and such is provided to Applicant in order to allow rebuttal thereof.

The Examiner alleges that the evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the JP 2002-30717 reference. The Examiner indicates that "[w]hile conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended."

Applicant submits that both demonstrative evidence, as well as a complete disclosure to another has been provided. The drawing of Exhibit A-1, the application of the elements shown in the drawings to the pending claims as set forth in the Declaration by Mr. Janssen, as well as the Declaration of Mr. Anderson corroborating such evidence and providing evidence of a complete disclosure to another, set forth sufficient evidence of conception.

The following comments, section by section of the Office Action, with regard to the Examiner's allegations that the declarations continue to be ineffective are provided below. If such declarations continue to be held ineffective to overcome the JP 2002-30717 reference, a telephone interview with the Examiner and the Examiner's supervisor is hereby requested.

ORIGINAL 1.131 DECLARATION

The Examiner alleges: "In applicant's earlier declaration in this case applicant submitted only one Exhibit A-1 (alleged to have been prepared in December 2001) to show conception of the claimed subject matter before the effective date of the reference (January 31, 2002). While an employee (Brian Urlaub, who could presumably corroborate the alleged facts) is mentioned on page 2 of applicant's declaration, no separate declaration is in evidence from him."

Applicant has provided a declaration by Mr. Anderson that corroborates the evidence presented. Mr. Anderson's declaration is as good as one from Brian Urlaub. Mr. Anderson has indicated that "all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon." No separate declaration is necessary from Brian Urlaub and clearly, Applicant does not need to present two declarations to corroborate the evidence submitted.

Further, not only does the drawing of Exhibit A-1 have a 2001 copyright date thereon, both Mr. Anderson and Mr. Janssen have "declared" that Exhibit A-1 was prepared in December of 2001. As such, unless the Examiner has evidence to the contrary, this must be taken as a fact, not an allegation as stated by the Examiner. Declarations under 37 CFR 1.68 are allowed in lieu of affidavits made under oath and should be treated appropriately.

The Examiner alleges that "[e]ach of the claims (i.e. claims 1, 14, and 37) requires that a section of an exiting conduit that is in a flooded state be replaced by at least one fluid source

conduit that provides for heat exchange between the a fluid flowing through the source conduit and a fluid flowing in a closed loop." Further, the Examiner alleges that "[t]here is no evidence that applicant conceived of an invention supporting claims of this scope prior January 31, 2002 (the date of JP 2002-30717). In fact, it does not appear that applicant conceived of this idea until November 29, 2002 (applicant's Exhibit B-8) when he first proposed inserting the GFX heat exchanger into municipal water mains in the state of Minnesota). There is no evidence anywhere in Exhibit A-1 that the heat exchanger is being retro-fitted into an existing water main in a flooded state. It could just as well show new construction. It could just as well show a water main that was un-flooded (i.e., only partially filled). Applicant's declaration doesn't even explain any of the disclosed elements in Exhibit A-1 and their correspondence to what is claimed in the claims. For example, the GFX heat exchanger is nothing more than a highly schematic showing leaving the reader to guess at what is being shown. None of the other Exhibits B-1 through B-11 establish conception of the claimed subject matter of the independent claims prior to January 31, 2002. The general requirements of MPEP 715.07 have not been met."

As recited in MPEP 715.07, "[t]he essential thing to be shown in 37 CFR 1.131 is priority of invention and this may be done by any satisfactory evidence of the fact." As further recited therein, "[f]or example, the allegations of fact might be supported by submitting as evidence one or more of the following: (A) attached sketches . . . (F) attached supporting statements by witnesses, where verbal disclosures are the evidence relied upon . . ."

Quite contrary to the Examiner's allegations, Applicant has provided evidence that Applicant conceived of the invention recited in the claims prior to January 31, 2002 (the effective date of the JP 2002-30717 reference). In fact, contrary to the Examiner's allegation that Applicant's declaration "doesn't even explain any of the disclosed elements in Exhibit A-1 and their correspondence to what is claimed in the claims," the submitted revised declaration by Mr. Janssen (see pages 3-6) walks one through each of the claims and clearly points out the support for each of such claims in the Exhibit A-1. With respect to the GFX heat exchanger being "nothing more than a highly schematic showing leaving the reader to guess at what is being

shown," Applicant has provided an entire Exhibit A-3 setting forth details of such a heat exchanger available at the time of the present invention. Nothing has been left to the imagination of the reader.

Further, the declaration by Mr. Anderson clearly describes in paragraph 4 and 5 that the heat exchanger was to be retro-fitted into an existing water main in a flooded state. This coincides with the existence in Exhibit A-1 of a GFX type heat exchanger in a water main as shown therein.

Clearly, the general requirements of MPEP 715.07 have been met and conception has been established.

#### NEW DECLARATIONS

##### ANDERSON DECLARATION

The Examiner rejects the declaration of Mr. Anderson as conclusory and cites the lack of supporting evidence to support such a conclusion. The Examiner further alleges that the same drawing of Exhibit A-1 is being used to show support for his conclusions and at the same time insults Mr. Anderson's ability to "remember details without the benefit of any notes or writings (i.e., facts) dating from the time of the alleged conception."

All the evidence of conception must be considered together, not as separate pieces attempting to each show conception. It is noted that the drawing of Exhibit A-1 shows substantial support for the claimed invention and that the only detail Mr. Anderson needed to remember at the time the drawing was created is that "a section of the existing water main would be removed and a heat exchanger would be inserted into a municipal water main." As noted above in MPEP 715.07, "supporting statements by witnesses, where verbal disclosures are the evidence relied upon" can be used as supporting evidence.

Again, the Examiner is attacking the veracity of the declaration when the declarant has indicated that "all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were

made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon." As such, unless the Examiner has evidence to the contrary as to what Mr. Janssen did or did not tell Mr. Anderson in 2001, Mr. Anderson's declarations must be taken as support for the facts being evidenced.

#### JANSSEN DECLARATION

The Examiner expresses various concerns with respect to the use of Exhibit A-3 in the declaration by Mr. Janssen. Applicant agrees with the Examiner's indication that "the GFX heat exchanger, from all of the product literature submitted and from USP 4,619,311, is not used in a flooded condition." Further, Applicant agrees with the Examiner's observation that such information "would suggest use of the GFX in a non-flooded condition (contrary to the current claims)."

However, the Examiner is not appropriately considering the use of Exhibit A-3 as presented by the Applicant. Applicant is not using such materials of Exhibit A-3 regarding GFX heat exchangers to alone show conception of the present invention. In fact, the conception is the application of a GFX type heat exchanger to a water main in a flooded condition as shown and evidenced by the declaration previously submitted (e.g., Exhibit A-1 and A-2).

Exhibit A-3 is only used to show the type of heat exchanger that is called out in the drawing of Exhibit A-1 in response to the Examiner's comments that the drawing is only "highly schematic." The GFX heat exchanger shown in the drawing has been around a long time as evidenced by the issue date of the GFX patent (i.e., 28 October 1986) (contrary to the Examiner's assertion that Applicant is attempting to reference a later filed patent application to cure an evidentiary deficiency in the alleged conception). As such, since this heat exchanger is known to those skilled in the art, no further detail about the GFX heat exchanger was necessary when the drawing of Exhibit A-1 was created showing such a heat exchanger in a flooded water main.

The Examiner continues to maintain that "[n]othing in the factual materials in support of an alleged conception prior to December 2001, discloses a flooded water main and replacement of a pre-existing section of water main with a GFX heat exchanger." Further, the Examiner continues to maintain that "neither the Anderson nor the Janssen declarations do anymore than *allege* that the aforementioned drawing of December 2001 supports every limitation in the current claims without offering any facts the support that the drawing discloses a flooded water main and replacement of a pre-existing section of water main with a GFX heat exchanger, when in fact it is completely silent on both of these matters" (emphasis in italic added).

Applicant has presented sufficient evidence to show conception of the present claimed invention. First, the drawing of Exhibit A-1 shows an exemplary drawing of a system according to the present claimed invention. The system as shown in the drawing includes a city water main into which GFX type heat exchanger is inserted. As indicated in the declaration by Mr. Janssen, one skilled in the art would recognize that a city water main is a conduit that operates in a flooded state (see, for example, the enclosed Attachment A that includes web site information that defines a "main" as "a water pipe that is under pressure all the time"). The drawing shows a city water main not a sewer or wastewater pipe. If the city water main is a gravity type system (as alleged by the Examiner) (e.g., with a water tower), it is still flooded and under pressure.

Further, the declaration by Mr. Anderson, which provides supporting statements by Mr. Anderson regarding discussions between Mr. Anderson and Mr. Janssen, corroborates that the water main being referred to in the drawing is an existing water main and that in the fall of 2001 regulatory requirements were discussed regarding the need to obtain permission from regulatory agencies to replace sections of existing municipal water mains. Mr. Anderson's declaration is not an "allegation" as indicated by the Examiner, but is a declaration under 37 CFR 1.68 that is allowed in lieu of affidavits made under oath. The veracity of such supporting statements should not be questioned unless the Examiner has information which rebuts or is contrary to such statements.

As such, per MPEP 715.07, allegations fact can be supported by "submitting as evidence one or more of the following: (A) attached sketches . . . (F) attached supporting statements by witnesses. . ." The drawing clearly shows the system according to the claimed invention and with the declaration by Mr. Anderson providing supporting statements concerning the system and installation thereof based on discussions with Mr. Janssen, the declaration under 37 CFR 1.131 by Mr. Anderson does indeed show conception and is adequate to overcome the JP 2002 30717 reference.

#### LACK OF DILIGENCE AS TO THE INVENTION

The Examiner also maintains that the Exhibits B-2 through B-9 "at best support conception of the claimed invention as of November 29, 2002 (Exhibit B-8) and do not show any diligence for the approximate year period from alleged conception in December 2001 until late November 2002, because nothing in these supposed acts of diligence appears to be directly related to the invention claimed." The Examiner fails to address Exhibit B-1 in which evidence of obtaining the cost of manufacturing a part that is inserted into the municipal water main is shown.

As recited in MPEP 715.07(a), "applicant must show evidence of facts establishing diligence." As set forth in MPEP 2138.06 Section, "[t]he work relied upon to show reasonable diligence must be directly related to the reduction to practice of the invention in issue. . . . See also Scott v. Koyama, 281 F.3d 1243, 1248-49, 61 USPQ2d 1856, 1859 (Fed. Cir. 2002) (Activities directed at building a plant to practice the claimed process of producing tetrafluorethane on a large scale constituted efforts toward actual reduction to practice, and thus were evidence of diligence. . . )."

The language of the declaration by Mr. Janssen clearly describes the diligence by Mr. Janssen to reduce the claimed invention to practice. The Exhibits B-1 through B-9 are evidence supporting the diligence asserted by the Applicant. Such evidence of diligence must be considered in its entirety along with the language supporting diligence presented in the



Declaration by Mr. Janssen. As shown, just as in Scott v. Koyama, Mr. Janssen engaged in all sorts of activities directed at installing the system (i.e., reducing the claimed invention to practice).

One cannot just bypass all the regulatory and site restrictions and proceed in installing a system as claimed without permission and approval by regulatory authorities. It takes time and effort to obtain such permissions and approvals. Thus, diligence must be considered in light of the circumstances surrounding the installation of a heat exchanger into a water main that carries water from a potable water source.

For example, as discussed in the Declaration by Mr. Janssen, from June, 2002 to November 27, 2002, Applicant had meetings and telephone conversations with officials from the Department of Health regarding approval of the use of a heat exchanger on a municipal water main. Such preparatory work preceded the receipt of approval to install the heat exchanger (see B-8 thru B-9). Without approval, installation could not have occurred. As such, this preparatory work was necessary to such installation and clearly evidence of diligence in reducing the invention to practice. The same applies to obtaining permission from a site at which the system is to be installed. Much preparatory time and effort goes into obtaining such permission.

Further, and as clearly shown in the Exhibits and described by Mr. Janssen in the declaration, a manufacturer for the heat exchanger and other parts of the system needed to be found (see Exhibit B-1 and B-11), a site had to be found at which to install the system (see Exhibits B-2 through B-5, and also B-6 and B-7) (not an easy task to get permission), and approval from regulatory agencies needed to be obtained (see Exhibits B-8 and B-9). All of the Exhibits evidence the diligence in attempting to reduce the claimed invention to practice. Per the Declaration, the relationship of the claimed invention to the evidentiary documents is clearly provided (e.g., Exhibits B-2 through B-5, and also B-6 and B-7, evidence the activities related to finding a site to implement the system).

As such, contrary to the Examiner's assertion that nothing in the acts of diligence described in the declaration appear directly related to the invention claimed, each of such

Exhibits show activities directed at installing a system as claimed. In view thereof, diligence from the conception of the invention prior to the effective date of the JP 2002 30717 reference to late November 2002 has been established.

In view of the above discussion, it is respectfully submitted that the Declaration of Prior Invention made by Mr. Janssen overcomes the JP 2002 30717 reference and as such this reference cannot be used as a reference against the patentability of the claimed invention.

### **The 35 U.S.C. §103 Rejection**

#### **Rejection of claims 1-4, 6-8, 13-15, and 17-18 moot in view of amendment to claims**

Claims 1-4, 6-8, 13-15, and 17-18 were rejected as being unpatentable over the combined teachings of Bardenheier (U.S. Patent No. 4,782,888) and JP 2002-30717. Claims 5, 16, 28-31 and 36 were rejected as being unpatentable over Bardenheier/JP 2002-30717 as applied to claims 4 and 15, and further in view of FR 2381869 and Sherman.

Claims 1-4, 6-8, 13-15, and 17-18 were rejected as being unpatentable over the combined teachings of Bardenheier (U.S. Patent No. 4,782,888) and Theil (DE 2930484) and the conceded prior art GFX heat exchanger. Claims 5, 16, 28-31 and 36 were rejected as being unpatentable over Bardenheier/Theil/GFX, as applied to claims 4 and 15 above, and further in view of FR 2381869 and Sherman.

Claims 1-4, 6-8, 13-15, and 17-18 were rejected as being unpatentable over the combined teachings of Bardenheier (U.S. Patent No. 4,782,888) and Kneer (DE3139564) and the conceded prior art GFX heat exchanger. Claims 5, 16, 28-31 and 36 were rejected as being unpatentable over Bardenheier/Kneer/GFX, as applied to claims 4 and 15, and further in view of FR 2381869 and Sherman.

Claims 1, 14 and 28 have been amended to include the limitations of claims 9, 19, and 32, respectively. As claims 9, 19, and 32 were not rejected based on the above combinations, the

above rejections are moot. However, the following rejections by the Examiner of claims 9, 19, and 32 will be addressed in further detail below.

Rejection of claims 9, 19 and 32 over Bardenheier/JP 2002-30717, in view of Clancy (U.S. Patent No. 2,364, 130) or JP 88730 or JP 9-229574

Claims 9, 19 and 32 were rejected as being unpatentable over Bardenheier/JP 2002-30717, as applied to claims 1, 14 and 28, and further in view of Clancy (U.S. Patent No. 2,364, 130) or JP 88730 (Fig. 3) or JP 9-229574 (Figs. 3-5).

First, Applicant respectfully traverses the Examiner's rejections and any allegations with respect to such references cited and applied to the present invention, as well as allegations with respect to any of the declarations provided in the above-identified matter. Applicant has previously provided a "DECLARATION (REVISED) OF PRIOR INVENTION TO OVERCOME CITED PATENT UNDER 37 C.F.R. §1.131." It continues to be maintained by Applicant that the Declaration evidences the conception of the present invention prior to the effective date of the JP 2002-30717 reference (i.e., the publication date of 31 January 2002) coupled with due diligence from prior to the effective reference date (i.e., the publication date of 31 January 2002) to the filing date (i.e., 27 November 2002) of the provisional application Serial No. 60/429,160 (e.g., constructive reduction to practice) to which the present application claims priority.

As such, it continues to be maintained that the JP 2002-30717 reference is removed as a reference against the rejected claims. As all of the original claims 9, 19, and 32 (now pending and amended independent claims 1, 14, and 28 but which will continue to be addressed in this response as claims 9, 19, and 32 for clarity) have been rejected using the JP 2002-30717 reference, such claims are not obvious in view of the cited references. It is respectfully requested that the rejection be withdrawn.

Secondly, however, even if the Examiner inappropriately continues to maintain that the Declaration submitted does not render the JP 2002-30717 reference removed as against the

rejected claims, the present invention is not obvious over the combination of references for at least the following reasons, including the lack of a reasonable expectation of success, and further by reason of secondary considerations as described herein.

Non-obviousness of Claims 9, 19, and 32

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. *See* M.P.E.P. § 2143.

Further, as indicated in MPEP 2141: "The Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), stated:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. . .

This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. The difficulties, however, are comparable to those encountered daily by the courts in such frames of reference as negligence and scienter, and should be amenable to a case-by-case development. We believe that strict observance of the requirements laid down here will result in that uniformity and definitiveness which Congress called for in the 1952 Act.

. . . Office policy is to follow *Graham v. John Deere Co.* in the consideration and determination of obviousness under 35 U.S.C. 103. As quoted above, the four factual inquiries enunciated therein as a background for determining obviousness are as follows:

- (A) Determining the scope and contents of the prior art;
- (B) Ascertaining the differences between the prior art and the claims in issue;
- (C) Resolving the level of ordinary skill in the pertinent art; and
- (D) Evaluating evidence of secondary considerations.

... Objective evidence or secondary considerations such as unexpected results, commercial success, long-felt need, failure of others, copying by others, licensing, and skepticism of experts are relevant to the issue of obviousness and must be considered in every case in which they are present. When evidence of any of these secondary considerations is submitted, the examiner must evaluate the evidence. The weight to be accorded to the evidence depends on the individual factual circumstances of each case. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987). The ultimate determination on patentability is made on the entire record. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992)."

Still further, as recited in MPEP 716.06:

Another form of secondary evidence which may be presented by applicants during prosecution of an application, but which is more often presented during litigation, is evidence that competitors in the marketplace are copying the invention instead of using the prior art. However, more than the mere fact of copying is necessary to make that action significant because copying may be attributable to other factors such as a lack of concern for patent property or contempt for the patentees ability to enforce the patent. *Cable Electric Products, Inc. v. Genmark, Inc.*, 770 F.2d 1015, 226 USPQ 881 (Fed. Cir. 1985). Evidence of copying was persuasive of nonobviousness when an alleged infringer tried for a substantial length of time to design a product or process similar to the claimed invention, but failed and then copied the claimed invention instead. *Dow Chem. Co. v. American Cyanamid Co.*, 837 F.2d 469, 2 USPQ2d 1350 (Fed. Cir. 1987). Alleged copying is not persuasive of nonobviousness when the copy is not identical to the claimed product, and the other manufacturer had not expended great effort to develop its own solution. *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 227 USPQ 766 (Fed. Cir. 1985). See also *Vandenberg v. Dairy Equipment Co.*, 740 F.2d 1560, 1568, 224 USPQ 195, 199 (Fed. Cir. 1984) (evidence of copying not found persuasive of nonobviousness) and *Panduit Corp. v. Dennison Manufacturing Co.*, 774 F.2d 1082, 1098-99, 227 USPQ 337, 348, 349 (Fed. Cir. 1985), *vacated on other grounds*, 475 U.S. 809, 229 USPQ 478

(1986), *on remand*, 810 F.2d 1561, 1 USPQ2d 1593 (Fed. Cir. 1987) (evidence of copying found persuasive of nonobviousness where admitted infringer failed to satisfactorily produce a solution after 10 years of effort and expense).

Lack of Reasonable Expectation of Success

There is no reasonable expectation of success in the combination of the cited references. For example, JP 2002-30717 describes a heat exchanger that is used with a waste pipe. Bardenheier does not even describe any construction of a heat exchanger, although it does indicate that the nondescript heat exchanger can be used with a municipal water main. Yet further, Clancy (U.S. Patent No. 2,364, 130) describes a heat exchange apparatus having a somewhat flattened coil for use in a waste heat heater or boiler (see column 1), JP 88730 (Fig. 3) shows a cooling pipe have a portion that is flat wrapped around an Exhaust Gas Recirculation pipe, and JP 9-229574 (Figs. 3-5) describes a flattened tube in which coolant passes.

None of the references show a flattened surface piping used with a fluid source conduit configured to replace a section of existing conduit that is in a flooded state as described in the pending claims. The Examiner alleges that it would be obvious to one skilled in the art to use such a configuration "to increase the contact area and, hence, the heat transfer would have been obvious to one of ordinary skill in the art." However, what is obvious is that no one, until the invention and disclosure thereof (e.g., confidential and/or non-confidential) by Applicant, recognized that use of a heat exchanger, like the GFX heat exchanger configured to replace a section of an existing conduit that is in a flooded state, would be successful in accomplishing sufficient heat transfer to make a system such as that described in claim 1 effective.

There was no reasonable expectation of success in substituting a heat exchanger that functions in a waste environment into a flooded state situation until recognized by Applicant. For example, Bardenheier recognizes that "utilities that deliver domestic water have large quantities of liquid with excellent low grade thermal energy exchange potential" (column 1, lines 43-45) and that a "reason for not tapping this potential is the significant risk of hazard to the public health and safety by uncontrolled access to a domestic water supply" (column 1, lines 47-

48). However, Bardenheier fails to find, define, or describe any heat exchanger that would solve the problem and/or operate in a water main with a reasonable expectation of success. Not until Applicant's invention and disclosure thereof has anyone described a system using a suitable heat exchanger as described in the pending claims that would provide successful heat exchange in a flooded state situation.

This is clearly evidenced by the copying of Applicant's invention by the maker of the GFX heat exchanger (i.e., that has been described as early as at least October of 1986 in the GFX Patent No. 4,619,311 and which was usable in a waste water gravity type application) as described herein.

#### Copying by One Skilled in the Art

As indicated above, copying is a form of secondary evidence which may be presented by applicants during prosecution of an application that must be considered by the Examiner (e.g., evidence that competitors in the marketplace are copying the invention instead of using the prior art). In the present case, copying has occurred by those skilled in the art (hereinafter referred to as "GFX") only after learning of Applicant's invention. Evidence of such copying is presented in a Declaration by Mr. Janssen attached hereto as Attachment B.

As shown by Declaration, only after learning of the Applicant's invention, did GFX update it's website to include an embodiment wherein a GFX type heat exchanger was inserted into a city water main to extract thermal energy therefrom. However, also as indicated above, "more than the mere fact of copying is necessary to make that action significant because copying may be attributable to other factors such as a lack of concern for patent property or contempt for the patentees ability to enforce the patent. *Cable Electric Products, Inc. v. Genmark, Inc.*, 770 F.2d 1015, 226 USPQ 881 (Fed. Cir. 1985). Evidence of copying was persuasive of nonobviousness when an alleged infringer tried for a substantial length of time to design a product or process similar to the claimed invention, but failed and then copied the claimed

invention instead. *Dow Chem. Co. v. American Cyanamid Co.*, 837 F.2d 469, 2 USPQ2d 1350 (Fed. Cir. 1987)."

In the present case, GFX obtained a patent on a GFX heat exchanger for use in waste water applications in 1986 as evidenced by the Exhibit A-3 of the Declaration (Revised) of Prior Invention to Overcome Cited Patent Under 37 CFR 1.131 by Mr. Janssen. For years, as mentioned in the Declaration attached hereto by Mr. Janssen, the only heat exchanger used and/or tested in city water mains were heat exchangers that removed water from the water main, processed or otherwise manipulated that water, and then returned the water to the main. Not until the invention by the Applicant (i.e., well over 10 years after the GFX Patent No. 4,619,311 issued in 1986), and disclosure of same to personnel associated with the GFX patent, did GFX design a system where a GFX type heat exchanger is used in a city water main. Other designs were known as mentioned above that could have been used. However, instead, GFX copied the claimed invention.

Such a substantial length of time in failing to recognize use of its own GFX technology for use with conduits that are in a flooded state (e.g., city water main) is clearly an indication of the nonobviousness of the claimed invention. See *Panduit Corp. v. Dennison Manufacturing Co.*, 774 F.2d 1082, 1098-99, 227 USPQ 337, 348, 349 (Fed. Cir. 1985), *vacated on other grounds*, 475 U.S. 809, 229 USPQ 478 (1986), *on remand*, 810 F.2d 1561, 1 USPQ2d 1593 (Fed. Cir. 1987) (evidence of copying found persuasive of nonobviousness where admitted infringer failed to satisfactorily produce a solution after 10 years of effort and expense).

Still further, as set forth in the Declaration by Mr. Janssen attached hereto, the copying of the claimed invention occurred very soon after Mr. Janssen provided GFX with the information concerning the present invention. This also is indicia of non-obviousness (see *Asahi/America Inc. v. MFRI Inc.*, 36 F. Supp. 2d 618,622, 51 USPQ2d 1154 (S.D. N.Y. 1999) ("the Court's conclusion as to the non-obviousness of plaintiff's invention is corroborated . . . by the fact that it was copied by defendants as soon as they were presented with it.")).



For at least the above reasons, original claims 9, 19, and 32 (now independent claims 1, 14, and 28) are not obvious in view of the cited references. Yet further, claims 2-8, 13, 15-18, 29-31, and 36 respectively depend on one of the independent claims, either directly or indirectly. Therefore, they include the limitations of the respective independent claim upon which they depend. As such, these claims are also not obvious over the references cited for the same reasons as provided above. However, further, the citation of such numerous references to make obvious one or more of such claims of the present invention is clearly hindsight reconstruction of Applicant's invention.

Rejection of claims 9, 19 and 32 over Bardenheier/Theil/GFX, in view of Clancy (U.S. Patent No. 2,364, 130) or JP 88730 or JP 9-229574

Claims 9, 19 and 32 were rejected as being unpatentable over Bardenheier/Theil/GFX, as applied to claims 1, 14 and 28, and further in view of Clancy (U.S. Patent No. 2,364, 130) or JP 88730 (Fig. 3) or JP 9-229574 (Figs. 3-5). Applicant respectfully traverses the Examiner's rejections.

Such claims are not obvious over the combination of references for at least the following reasons, including the lack of a reasonable expectation of success, and further by reason of secondary considerations as described herein.

Lack of Reasonable Expectation of Success and Copying by Others

There is no reasonable expectation of success in the combination of the cited references. For example, Thiel describes a heat exchanger that is not like that described in the amended pending claims (e.g., Thiel includes elements within a wall of the heat exchanger). Bardenheier does not even describe any construction of a heat exchanger, although it does indicate that the nondescript heat exchanger can be used with a municipal water main. The conceded prior art GFX heat exchanger describes a heat exchanger such as that in the rejected claims. However, as set forth in the declaration with respect to copying, there was no motivation to one skilled in the

art to use such a heat exchanger to replace a fluid conduit in a flooded state, until after Applicant's disclosure of the present invention to the those associated with the GFX technology.

Yet further, Clancy (U.S. Patent No. 2,364, 130) describes a heat exchange apparatus having a somewhat flattened coil for use in a waste heat heater or boiler (see column 1), JP 88730 (Fig. 3) shows a cooling pipe have a portion that is flat wrapped around an Exhaust Gas Recirculation pipe, and JP 9-229574 (Figs. 3-5) describes a flattened tube in which coolant passes.

None of the references show a flattened surface piping used with a fluid source conduit configured to replace a section of existing conduit that is in a flooded state as described in the pending claims. The Examiner alleges that it would be obvious to one skilled in the art to use such a configuration "to increase the contact area and, hence, the heat transfer would have been obvious to one of ordinary skill in the art." However, what is obvious is that no one, until the invention and disclosure thereof (e.g., confidential and/or non-confidential) by Applicant, recognized that use of a heat exchanger, like the GFX heat exchanger configured to replace a section of an existing conduit that is in a flooded state, would be successful in accomplishing sufficient heat transfer to make a system such as that described in claim 1 effective.

There was no reasonable expectation of success in substituting a heat exchanger that functions in a waste environment into a flooded state situation until recognized by Applicant. For example, Bardenheier recognizes that "utilities that deliver domestic water have large quantities of liquid with excellent low grade thermal energy exchange potential" (column 1, lines 43-45) and that a "reason for not tapping this potential is the significant risk of hazard to the public health and safety by uncontrolled access to a domestic water supply" (column 1, lines 47-48). However, Bardenheier fails to find, define, or describe any heat exchanger that would solve the problem and/or operate in a water main with a reasonable expectation of success. Not until Applicant's invention and disclosure thereof has anyone described a system using a suitable heat exchanger as described in the pending claims that would provide successful heat exchange in a flooded state situation.

This is clearly evidenced by the copying of Applicant's invention by the maker of the GFX heat exchanger (i.e., that has been described as early as at least October of 1986 in the GFX Patent No. 4,619,311 and which was usable in a waste water gravity type application) as described above and which shall not be repeated.

For at least the above reasons, original claims 9, 19, and 32 (now independent claims 1, 14, and 28) are not obvious in view of the cited references. Yet further, claims 2-8, 13, 15-18, 29-31, and 36 respectively depend on one of the independent claims, either directly or indirectly. Therefore, they include the limitations of the respective independent claim upon which they depend. As such, these claims are also not obvious over the references cited for the same reasons as provided above. However, further, the citation of such numerous references to make obvious one or more of such claims of the present invention is clearly hindsight reconstruction of Applicant's invention.

Rejection of claims 9, 19 and 32 over Bardenheier/Kneer/GFX, in view of Clancy (U.S. Patent No. 2,364, 130) or JP 88730 or JP 9-229574

Claims 9, 19 and 32 were rejected as being unpatentable over the prior art Bardenheier/Kneer/GFX, as applied to claims 1, 14 and 28, and further in view of Clancy (U.S. Patent No. 2,364, 130) or JP 88730 (Fig. 3) or JP 9-229574 (Figs. 3-5).

Such claims are not obvious over the combination of references for at least the following reasons, including the lack of a reasonable expectation of success, and further by reason of secondary considerations as described herein.

Lack of Reasonable Expectation of Success and Copying by Others

There is no reasonable expectation of success in the combination of the cited references. For example, Kneer describes a heat exchanger that is not like that described in the amended pending claims (e.g., Kneer includes elements within a wall of the heat exchanger). Bardenheier does not even describe any construction of a heat exchanger, although it does indicate that the

nondescript heat exchanger can be used with a municipal water main. The conceded prior art GFX heat exchanger describes a heat exchanger such as that in the rejected claims. However, as set forth in the declaration with respect to copying, there was no motivation to one skilled in the art to use such a heat exchanger to replace a fluid conduit in a flooded state until after Applicant's disclosure of the present invention to those associated with the GFX technology.

Yet further, Clancy (U.S. Patent No. 2,364, 130) describes a heat exchange apparatus having a somewhat flattened coil for use in a waste heat heater or boiler (see column 1), JP 88730 (Fig. 3) shows a cooling pipe having a portion that is flat wrapped around an Exhaust Gas Recirculation pipe, and JP 9-229574 (Figs. 3-5) describes a flattened tube in which coolant passes.

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Applicant's invention and disclosure thereof has anyone described a system using a suitable heat exchanger as described in the pending claims that would provide successful heat exchange in a flooded state situation.

This is clearly evidenced by the copying of Applicant's invention by the maker of the GFX heat exchanger (i.e., that has been described as early as at least October of 1986 in the GFX Patent No. 4,619,311 and which was usable in a waste water gravity type application) as described above and which shall not be repeated.

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**Amendment and Response**

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For: HEAT EXCHANGE APPARATUS, SYSTEM, AND METHODS REGARDING SAME

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**Summary**

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicant's Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted

By

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6 Dec 2006

Date

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**CERTIFICATE UNDER 37 CFR §1.10:**

"Express Mail" mailing label number: EV 201878047 US

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The undersigned hereby certifies that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to **Mail Stop Amendment**, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By: 

Name: Deb Schurmann

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